Intraoral welding and lingualized (lingual contact) occlusion: a case report

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Intraoral welding was developed by Pier Luigi Mondani of Genoa, Italy, in the 1970s to permanently connect submerged implants and abutments to a titanium wire or bar by means of an electric current (Fig. 1). The current is used to permanently fuse the titanium to the abutments in milliseconds, so the heat generated does not cause any pathology or patient discomfort.

If possible the implants are placed without flaps. The titanium wire or bar is bent and aligned passively to the contour of the labial and lingual surfaces of the implants before applying the electric current to permanently connect titanium implants.

The technique follows a strict surgical and prosthodontic protocol, which includes using a number of implants close as possible to the number of teeth to be replaced, achieving primary stability by engaging both cortical plates (bicortical), immediate splinting of the implants utilizing intraoral welding and immediate insertion of a fixed provisional prosthesis with satisfactory occlusion. The technique provides for immediate loading and does not jeopardize the integration process.

Although intraoral welding has been used successfully in Europe, especially Italy, for many years, it has yet to achieve everyday use in the United States.

The instantaneous stability that results from the splinting can reduce the risk of failure during the healing period. Intraoral welding can also eliminate errors and distortions caused by unsatisfactory impression making, as the procedure is performed directly in the mouth.

Intraoral welding can fulfill a great need for business and socially active patients for the integration of the implants and the definitive restoration. Intraoral welding can be used successfully in Europe, especially Italy, for many years, it has yet to achieve everyday use in the United States.

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 Providing a stable result. Cast chrome over dentures; however, because of limitations, the implant-assisted or implant-retained teeth, eight titanium one-piece implants were inserted in one arch.

Clinical report
A healthy 30-year-old caucasian woman presented for treatment at the office of one of the co-authors (LDC) with a mobile, painful, 12-tooth remunerative alloy- ceramic fixed prosthesis (Fig. 2). The prosthesis was removed and all of the remaining abutment teeth were found to be necrotic with extraction indicated (Fig. 3). After removal of the retained teeth, eight new one-piece implants were inserted in one session (Fig. 4).

Immediate stabilization of the eight implants and 2 additional implants that were previously inserted in the posterior regions was achieved by welding together in an introral welding tray (Fig. 3). Each implant to a 1.5 mm supporting titanium bar (Aceroni, Casargo, Italy), which previously had been bent to fit passively on the palatal mucosa (Fig. 5). A provisional resin prosthesis was inserted, which provided an acceptable vertical dimension and lingual contact occlusion. Oral hygiene procedures were demonstrated to the patient and reviewed at all future appointments.

After 90 days, a panoramic radiograph suggested complete integra-
tion (Fig. 6) and a healthy mucosa was observed (Fig. 7). The definitive full-arch gold-ceramic maxillary prosthesis was inserted, which greatly pleased the patient and her family.

In the lower arch, the right first and second bicuspid were extracted and implants placed in the first bicuspid and first molar regions. The implants were welded together intrarurally (Fig. 8), followed by the fabrication and cementation of a three-tooth fixed prosthesis (Fig. 9).

A 7-year follow-up radiograph (Fig. 10) shows satisfactory preservation of bone surrounding all of the implants. An introral photograph of the definitive prosthesis shows healthy gingival tissue (Fig. 11). A Lingualized (lingual contact) occlusion is recommend-
ed. The upper anterior teeth are lost but a stable, estheti-

cal displacement of the prosthesis can be removed vertically. The abut-

ment teeth. Among the advantages of a lingualized occlusion are occlusal forces centered over the ridge crest in centric occlusion, masticatory force is effectively transferred more "lingual" to the ridges during work-


"lingual" to the ridges during work-


side excursions, the "molar and poster-

ite" type of occlusion minimizes the occlusal contact area providing for more efficient food breaks penetration and elimination of the precise incisal occlusion that can com-

plicate the arrangement of anatomic occlusal procedures.5

Figure 15. Completed bridge with SynCone caps processed in pos-

"lingual" to the ridges during work-

Figure 16. Completed restoration. Note the absence of screw ac-

cess holes for a prosthesis that looks like a denture yet fits like a bridge.

Figure 17. ATLANTIS Conus abutments torqued to specified level, obturated with Teflon tape and composite resin.

Figure 18. Laboratory processed, clear duplicate prosthesis with silanized acrylic material to improve retention; to be used as an indirect technique to protect the lingual of the edentulous arch.

Figure 19. Panoramic radiograph of the abutments seated on the four selected implants. Because the restorative crown is a mobile, removable bridge, the abutment teeth are supported, gradual diminution of the residual ridge will present no consequence to the patient.

Figure 20. Completed bridge in place showing flap length suit-
able to prevent food.

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References
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"lingual" to the ridges during work-

Figure 21. Provisional prosthesis and temporary resin prosthesis is inserted.

Figure 22. A Lingualized (lingual contact) occlusion are occlusal pro-
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